DOCKET NO: 286006US0PCT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:
MARKUS BOLD, ET AL.	: EXAMINER: KOSACK, JOSEPH R.
SERIAL NO: 10/568,344	:
FILED: FEBRUARY 14, 2006	: GROUP ART UNIT: 1626
FOR: TRANSITION METAL COMPLEXES COMPRISING CARBENE LIGANDS SERVING AS EMITTERS FOR ORGANIC LIGHT-EMITTING DIODES (OLED'S)	:

PRE-APPEAL BRIEF REQUEST FOR REVIEW

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicants request pre-appeal review of the above identified case. A Notice of Appeal has been filed herewith.

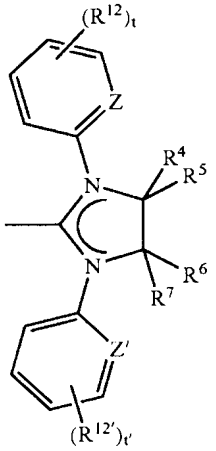
REMARKS

Applicants appreciate the indication that their amendment filed April 7, 2010, will be entered. Upon entry, this amendment will address the objections to pending Claims 27, 31-33, 37-39 and 41 as containing non-elected subject matter.

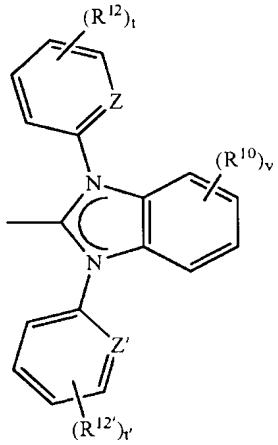
Claims 19 and 34 are the broadest rejected claims pending herein. Claim 19 describes an organic light-emitting diode comprising at least one uncharged transition metal complex of the formula (I) comprising at least one carbene ligand:

$$[L]_m \diagdown M^1[\text{carbene}]_n \quad (I)$$
$$[K]_o \diagup$$

the carbene ligand being selected from the group consisting of the following formulae



and



Claim 34 is directed to a light-emitting layer comprising the same transition metal complex of formula (I) comprising at least one carbene ligand.

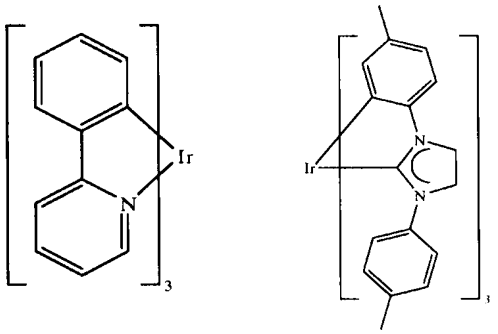
The Examiner acknowledges in the Advisory Action that no reference applied against the claims suggests that carbene-containing compounds could or should be used as light-emitting compounds in OLEDs. Rather, the rejection is based on an "obvious to try" analysis predicated on Hitchcock and Thompson.

Hitchcock is a 1982 research article reporting the synthesis of certain carbene-containing iridium complexes. The reference is discussed at specification page 5, middle. It is undisputed that Hitchcock nowhere discloses or suggests any use whatever for the disclosed carbenes.

The Examiner now agrees that Thompson does not show, discuss, or use a carbene ligand in any of his disclosed organometallic complexes which are useful as phosphorescent emitters in OLEDs. The Examiner concludes, however, that structural similarity between the

compounds of Hitchcock and Thompson would have motivated one skilled in the art to "try the compounds of Hitchcock et al. in an OLED since no evidence has been provided that the Hitchcock et al. compounds would not have the properties desired of light emitting compounds in OLEDs." See item 11 of the Advisory Action.

First, there is no similarity between the compounds of Thompson and Hitchcock, either structurally or electronically. According to the Examiner, the ligands on Thompson "have connections through two different cycles on each ligand", referring to paragraph [0023] thereof.[1] The compound at paragraph [0023] of Thompson does indeed "have connections through two different cycles on each ligand" but the ligand bears absolutely no resemblance to Hitchcock's:



Thompson Hitchcock

In basic terms, Thompson's ligand has two cycles while Hitchcock's has three. Accordingly, there is no structural similarity, and the Examiner has not cited to any structure in Thompson that is similar to one in Hitchcock.

In addition, there is no electronic similarity between the compounds of Thompson and Hitchcock. Thompson's ligands are anionic, via the cyclometallated phenyl ring. In contrast, Hitchcock's ligands are carbenes, which are neutral, divalent carbon species with two

[1] See, e.g., page 5, bottom, of the Final rejection.

nonbonding electrons.[2] Thus, there is no similarity between the compounds of Thompson and Hitchcock, either structurally or electronically as the ring systems differ greatly and as anionic species and carbenes are different and distinct from one another.

In view of these structural and electronic differences there is no guidance or disclosure provided by Thompson that would lead one of ordinary skill in the art to expect that the structurally and electronically very different carbene complexes of Hitchcock could or would be useful in an OLED or light-emitting layer, as claimed.

To the extent that the Examiner has taken an "obvious to try" approach in rejecting the present claims, Applicants note that in *KSR* the Supreme Court indicated that an invention *may* be obvious *if* there are a finite number of identified, predictable solutions, *and* these known options lead to the anticipated success. In the present case, Hitchcock nowhere suggests the use of the disclosed compounds *for anything*. Thompson, for its part, in no way limits the parameters or choices one of ordinary skill in the art faces in choosing compounds for use in, e.g., OLEDs, nor does the reference provide any useful guidance leading one of ordinary skill to the compounds of the present claims, as the compounds in Thompson are structurally and electronically different from Hitchcock's. In this regard, the fact that Thompson indicates that compounds completely different from those described in Hitchcock can be used in OLEDs is not helpful, and does not establish a *prima facie* case.

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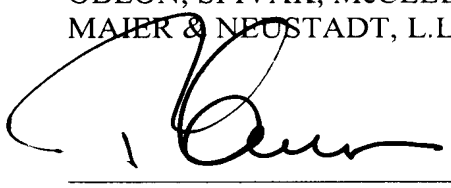
[2] Carbene. In chemistry, a carbene is an organic molecule containing a carbon atom with six valence electrons and having the general formula RR'C: (Organic Chemistry R.T Morrison, R.N Boyd pp 473-478; http://en.wikipedia.org/wiki/Carbene); Generic name for the species H2C: and substitution derivatives thereof, containing an electrically neutral bivalent carbon atom with two nonbonding electrons (http://www.chemicool.com/definition/carbene.html).

Accordingly, Applicants request pre-appeal review. There is no reason that this case should be appealed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.



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